

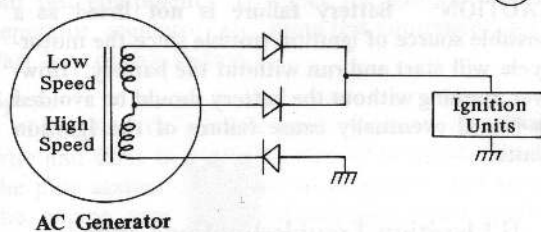
2. IGNITION SYSTEM

The H2 has a Magneto CDI ignition system. This ignition method has been developed for higher performance and greater reliability than other CDI systems.

As shown in Fig. 428-429 both types of CDI ignitions produce the ignition spark as a result of capacitor discharge. But while the CDI takes the low battery voltage and changes it to 370-500 VDC with a converter, the MCDI takes high voltage directly from a special generator winding and rectifies it. The Magneto CDI has another advantage in that it can use the signal generator voltage directly without amplification.

The AC generator contains two high voltage ignition windings. One is used at low speeds, and the other takes over during high speed.

Ignition Windings

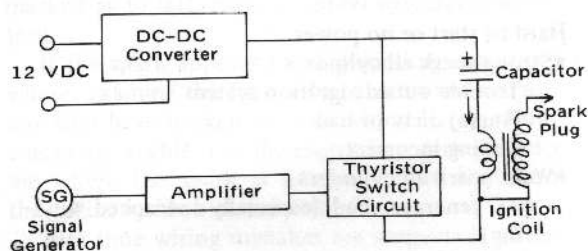


The low speed windings have a large number of turns so high voltage can be generated at relatively low r.p.m. When speed rises, however, these windings cannot supply charge current fast enough, so the high speed coil takes over.

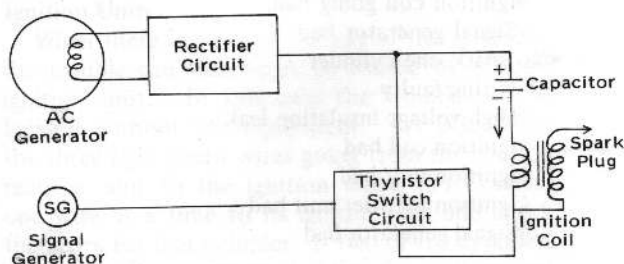
At this point, where low speed winding voltage starts dropping, the voltage of the high speed windings rises sufficiently to supply the high capacitor charge voltage. The high speed windings have fewer turns and much lower resistance and consequently do not become loaded down when supplying charge current.

The two coils are matched so that a steady

Battery CDI



Magneto CDI



voltage is supplied to the ignition units at all speeds.

Operation

Figure 429 is a simplified diagram of one of the three identical Magneto CDI Units; each unit produces the spark for one cylinder.

Capacitor charge current flows from the rectifier through ground, up through the primary winding of the ignition coil, and charges the capacitor - to + in the direction indicated. When the thyristor receives a signal at the gate lead as sent from the signal generator, it begins to conduct. This completes a current path for capacitor discharge through the ignition coil primary, ground, and up through the thyristor. The sudden discharge in combination with the high turns ratio of the ignition coil, cause a high voltage to be induced in the secondary winding of the coil, and consequently a spark jumps across the spark plug gap.

Spark voltage ranges up to 36KV but a minimum of 20KV is always available, more than sufficient to supply the 13 kilovolts necessary to fire the spark plug.

The SSM ignition system also incorporates automatic timing advance. The thyristor is turned on at the same voltage level regardless of engine speed. But as speed increases, the voltage from the signal generator rises faster and the thyristor switch voltage point is reached sooner, thereby advancing ignition timing.

Magneto CDI Timing Advance

